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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,482	12/17/2003	Ronald H. Naismith	SAA-0104	1481

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EXAMINER	
FEARER, MARK D	
ART UNIT	PAPER NUMBER
2109	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/28/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/707,482	NAISMITH, RONALD H.	
	Examiner	Art Unit	
	Mark D. Fearer	2109	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 December 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *December 17, 2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement submitted on 17December2003 has been considered by the Examiner and made of record in the application file.

Drawings

The drawings are objected to because FIGURE 2 PLC's 122a, 122a and 122a should be 122a, 122b and 122c, respectively. Network 121 is mentioned in the specification, but is not shown in FIGURE 2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of

any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-11 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swales ("IP Address Assignment in Large Industrial Networks") in view of Bermudez (US 20030001012 A1).

Consider claim 1. Swales clearly shows and discloses a system of identifying and replacing failed network devices on an industrial ethernet network. This reads on the claimed "A network device for industrial control comprising: a network connection

between said network device and an industrial control network; ..." (("All devices on a TCP/IP communication network require assignment of an IP address before they can communicate with any other station. These IP addresses must be assigned carefully, since a misconfigured IP address can cause significant disruption on a functioning network, particularly in cases where a new device is assigned an address already in use somewhere else on the network. Industrial networks have the characteristic that they are expected to be continuously available, but individual devices have finite failure rates and the number of devices requiring replacement during the operating life of the network will be large.") page 1 lines 7-14). However, Swales fails to teach a network device comprising a bar coded MAC address. Bermudez discloses a network device comprising a MAC address labeled in barcode format. This reads on the claimed "... a MAC address for said network device providing an address on the industrial control network, wherein said MAC address is an unique address of said network device; and a representation of the MAC address in a bar code format visible on said network device." (("... the MAC address might be printed on one label in barcode ...") paragraph 0013).

Therefore, it would have been obvious for a person of ordinary skill in the art to incorporate bar-coded MAC addresses as taught by Bermudez with devices on an industrial network as taught by Swales for the purpose of asset management on an ethernet network.

Consider claim 2, and as applied to claim 1 above. Swales, as modified by Bermudez, clearly shows and discloses DHCP as an IP address assignment scheme. This reads on the claimed "... communicates said MAC address to a DHCP server."

(("Instead of maintaining a rigid database where the MAC address must be pre-registered, as with BOOTP, a DHCP server instead keeps a 'pool' of addresses, each of which may be 'leased' or 'free' at any time. When a DHCP server receives a request for an address, it checks the table to see if an address is already allocated for that device (based on the MAC address and IP subnet), and returns it if so. If not, but there are free addresses in the 'pool', a 'lease' is created from one of the 'free' addresses, and this is allocated.") page 3 lines 3-7).

Consider claim 3, and as applied to claim 1 above. Swales, as modified by Bermudez, clearly shows and discloses BOOTP as an IP address assignment scheme. This reads on the claimed "...communicates said MAC address to a BOOTP server." (("A computer somewhere on the network (the 'BOOTP server') is set up to listen for BOOTP request packets, which

will be broadcast by each device when it starts up. The BOOTP request message contains information including the MAC address of the requestor. The BOOTP server contains a database matching each IP address (and other required supporting data) with the MAC address of the requestor. When the BOOTP request is received, and if there is a 'match' in the database, the server will respond with the correct IP address information.") page 2 lines 2-7).

Consider claim 4, and as applied to claim 1 above. Swales, as modified by Bermudez, clearly shows and discloses a programmable logic controller as being a required component when replacing a network device. This reads on the claimed "... the network device is a programmable logic controller." (("The replacement operations

being considered must include not only the sensors and actuators themselves, but also major infrastructure components such as network switches and PLC's") page 1 lines 20-21).

Consider claim 5, and as applied to claim 1 above. Swales, as modified by Bermudez, clearly shows and discloses an industrial network comprising ethernet. This reads on the claimed "... the industrial control network is an Ethernet network." (("As use of Ethernet has increased in the industrial space, particularly for connection of simple sensors and I/O devices to PLC's and SCADA systems, customers are having to rethink device addressing techniques") page 1 lines 5-6).

Consider claim 6. Swales clearly shows and discloses a method of assigning an IP address to a MAC address after replacing a network device in an industrial network environment. This reads on the claimed "The method of assigning a network address to a MAC address on an industrial control network comprising: indicating the desire to replace a first network device with a second network device; scanning ... that contains a first MAC address of the first network device; scanning ... that contains a second MAC address of the second network device; updating a network database, replacing said first MAC address with said second MAC address." (("All devices on a TCP/IP communication network require assignment of an IP address before they can communicate with any other station. These IP addresses must be assigned carefully, since a misconfigured IP address can cause significant disruption on a functioning network, particularly in cases where a new device is assigned an address already in use somewhere else on the network. Industrial networks have the characteristic that they

are expected to be continuously available, but individual devices have finite failure rates and the number of devices requiring replacement during the operating life of the network will be large.") page 1 lines 7-14 ("The Auto-IP technique involves a modified BOOTP server which is capable of issuing SNMP queries to switches to identify the switch and port number. The server uses this information, along with knowledge of whether a station is currently up or down, to determine whether a newly-seen MAC represents a new device or a replacement for an existing one. The sequence is as follows: An I/O device issues a BOOTP request (which naturally includes its MAC address) The Auto-IP server sees the request, and checks its database for a MAC match. If the MAC is already known, the IP address is returned just like in a conventional BOOTP service. If the MAC address does not match, Auto-IP sends out SNMP queries to the switch(es) to determine which port of which switch sent the request. If the switch address and port number matches one for which automatic assignment is configured, it is considered a 'potential replacement'. If there is one and only one Auto-IP-configured device at that switch and port position which is currently 'down', the replacement is authorized. The IP address for the 'down' device is transferred to the new MAC and thus recorded in the database, and the correct BOOTP response is sent.") page 6 lines 6-19). However, Swales fails to teach a network device comprising a bar coded MAC address. Bermudez discloses a network device comprising a MAC address labeled in barcode format. This reads on the claimed "... scanning a ... bar code that contains a ... MAC address of the ... network device ..." (("The reader 104 is capable of reading the MAC address from the network card 102

and transmitting it to the computer 106.") paragraph 0011 ("... the MAC address might be printed on one label in barcode ...") paragraph 0013 ("... the end user can read the MAC number directly from the exterior of the packing container and enter it into the proper databases or routing tables ...") paragraph 0016).

Therefore, it would have been obvious for a person of ordinary skill in the art to incorporate barcoded network devices as taught by Bermudez with the method of assigning IP addresses to MAC addresses as taught by Swales for the purpose of keeping ethernet databases current.

Consider claim 7, and as applied to claim 6 above. Swales, as modified by Bermudez, clearly shows and discloses BOOTP as an IP address assignment scheme. This reads on the claimed "... said network database is a table for a BOOTP server." (("A computer somewhere on the network (the 'BOOTP server') is set up to listen for BOOTP request packets, which will be broadcast by each device when it starts up. The BOOTP request message contains information including the MAC address of the requestor. The BOOTP server contains a database matching each IP address (and other required supporting data) with the MAC address of the requestor. When the BOOTP request is received, and if there is a 'match' in the database, the server will respond with the correct IP address information.") page 2 lines 2-7).

Consider claim 8, and as applied to claim 6 above. Swales, as modified by Bermudez, clearly shows and discloses DHCP as an IP address assignment scheme. This reads on the claimed "... said network database is a table for a DHCP server." (("Instead of maintaining a rigid database where the MAC address must be pre-

registered, as with BOOTP, a DHCP server instead keeps a 'pool' of addresses, each of which may be 'leased' or 'free' at any time. When a DHCP server receives a request for an address, it checks the table to see if an address is already allocated for that device (based on the MAC address and IP subnet), and returns it if so. If not, but there are free addresses in the 'pool', a 'lease' is created from one of the 'free' addresses, and this is allocated.") page 3 lines 3-7).

Consider claim 9, and as applied to claim 6 above. Swales, as modified by Bermudez, clearly shows and discloses methods of obtaining an IP address for a unique MAC address by DHCP or BOOTP. This reads on the claimed "... the network address is an Internal Protocol (IP) address." (("These IP addresses must be assigned carefully, since a misconfigured IP address can cause significant disruption on a functioning network, particularly in cases where a new device is assigned an address already in use somewhere else on the network.") page 1 lines 9-11).

Consider claim 10, and as applied to claim 6 above. Swales, as modified by Bermudez, clearly shows and discloses a method of physically replacing a (failed) network device. This reads on the claimed "... the step of physically replacing the first device with the second device." (("The replacement operations being considered must include not only the sensors and actuators themselves, but also major infrastructure components such as network switches and PLC's.") page 1 lines 20-21).

Consider claim 11. Swales clearly shows and discloses a method of assigning a network address to a MAC address in an industrial environment wherein a network database is updated after a network device is replaced. This reads on the claimed "The

method of assigning a network address to a MAC address on an industrial control network comprising: indicating the desire to add a network device to a network database; ... identifying an Internet Protocol (IP) address; updating a network database, adding said MAC address to the network database, said addition including both said MAC address and said Internet Protocol (IP) address." (("If there is one and only one Auto-IP-configured device at that switch and port position which is currently 'down', the replacement is authorized. The IP address for the 'down' device is transferred to the new MAC and thus recorded in the database, and the correct BOOTP response is sent.") page 6 lines 17-19). However, Swales fails to teach a method of reading a barcode. Bermudez discloses a barcode reader, a network device MAC address in barcode format, and a method of scanning the barcode. This reads on the claimed "... scanning a bar code that contains a MAC address of the network device; ..." (("Another aspect of the present invention is directed to a network device for an industrial control that consists of a network connection between the network device and an industrial control network where the MAC address of the network device provides an unique address on the industrial control network and a representation of the MAC address in a bar code format visible on said network device. Here, the bar code is read by a bar code reader that communicates the MAC address to a DHCP or a BOOTP server.") paragraph 0011).

Therefore, it would have been obvious for a person of ordinary skill in the art to incorporate a bar coded MAC address and a barcode reader as taught by Bermudez with updating a network database after a network device has been added or replaced

as taught by Swales for the purpose of efficiently keeping an industrial network functioning, keeping downtime due to replaced devices at a minimum.

Consider claim 13, and as applied to claim 10 above. Swales, as modified by Bermudez, clearly shows and discloses a method. This reads on the claimed "... said network database is a table for a BOOTP server." (("A computer somewhere on the network (the 'BOOTP server') is set up to listen for BOOTP request packets, which will be broadcast by each device when it starts up. The BOOTP request message contains information including the MAC address of the requestor. The BOOTP server contains a database matching each IP address (and other required supporting data) with the MAC address of the requestor. When the BOOTP request is received, and if there is a 'match' in the database, the server will respond with the correct IP address information.") page 2 lines 2-7).

Consider claim 14, and as applied to claim 10 above. Swales, as modified by Bermudez, clearly shows and discloses a method. This reads on the claimed "... said network database is a table for a DHCP server." (("Instead of maintaining a rigid database where the MAC address must be pre-registered, as with BOOTP, a DHCP server instead keeps a 'pool' of addresses, each of which may be 'leased' or 'free' at any time. When a DHCP server receives a request for an address, it checks the table to see if an address is already allocated for that device (based on the MAC address and IP subnet), and returns it if so. If not, but there are free addresses in the 'pool', a 'lease' is created from one of the 'free' addresses, and this is allocated.") page 3 lines 3-7).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Swales ("IP Address Assignment in Large Industrial Networks") in view of Bermudez (US 20030001012 A1) and in further view of Wilz et al. (US 20030173405 A1).

Consider claim 12, and as applied to claim 10 above. Swales clearly shows and discloses a method of obtaining an IP address for a unique MAC address by DHCP or BOOTP. This reads on the claimed "The method of assigning a network address to a MAC address of claim [11] ..." (("These IP addresses must be assigned carefully, since a misconfigured IP address can cause significant disruption on a functioning network, particularly in cases where a new device is assigned an address already in use somewhere else on the network.") page 1 lines 9-11). However, Swales fails to teach a method of reading a barcode. Bermudez discloses a barcode reader, a network device MAC address in barcode format, and a method of scanning the barcode. This reads on the claimed "The method of assigning a network address to a MAC address of claim[11] ... scanning a bar code representation ..." (("Another aspect of the present invention is directed to a network device for an industrial control that consists of a network connection between the network device and an industrial control network where the MAC address of the network device provides an unique address on the industrial control network and a representation of the MAC address in a bar code format visible on said network device. Here, the bar code is read by a bar code reader that communicates the MAC address to a DHCP or a BOOTP server.") paragraph 0011). Therefore, it would have been obvious for a person of ordinary skill in the art to incorporate a bar coded MAC address and a barcode reader as taught by Bermudez with the method of

obtaining a network address to a MAC address as taught by Swales for the purpose of keeping an industrial network running efficiently. However, Swales, as modified by Bermudez, fails to teach a method of obtaining an IP address from a barcode. Wilz et al. discloses a method wherein an IP address is encoded in barcode format. This reads on the claimed "... wherein the method of identifying said Internet Protocol (IP) address consists of scanning a bar code representation of said Internet Protocol (IP) address." (("... a bar code-driven Internet Access System according to a third generalized embodiment of the present invention, for automatically (i) reading a bar code symbol that has been encoded with only the Domain Name ((DN) or underlying IP address) ...") paragraph 0043).

Therefore, it would have been obvious for a person of ordinary skill in the art to incorporate encoding an IP address into barcode format as taught by Wilz et al. with the efficient method of replacing (failed) network devices as taught by Swales, as modified by Bermudez, for the purpose of making industrial networks even more efficient.

Conclusion

Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:

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Randolph Building
401 Dulany Street
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Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Mark Fearer whose telephone number is (571) 270-1770. The Examiner can normally be reached on Monday-Thursday from 7:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rafael Pérez-Gutiérrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

Mark Fearer
M.D.F./mdf

March 13, 2007